

Appl. No. 10/812,497
Amd. Dated December 29, 2005
Reply to Office Action of September 29, 2005

REMARKS/ARGUMENTS

Reconsideration of the present patent application, as amended, is respectfully requested.

Of pending claims 1-32, claims 22-25 were allowed, claims 1-8, 16-18, 26 and 32 were rejected, and claims 9-15, 19-21 and 27-31 were objected to but were considered allowable if rewritten to include all of the limitations of the independent claim and any intervening claim.

Claims 1-8, 16-18, 26 and 32 were rejected under 35 U.S.C. §103(a) as being obvious over United States Patent No. 6,832,018, issued December 14, 2004 to M. Abushagur, in view of United States Patent No. 6,198,864, issued March 4, 2004 to B.F. Lemoff *et al.* In making the rejections, the Examiner reasoned:

Abushagur 018' teaches (Figs. 1-4) an optical multiplexer/demultiplexer and method of making same including: a substrate 402, a first set of plural optical fibers 410, 411, a second set of output optical fibers 412, 413, a plurality of reflectors 420, 421 which alternatively reflect light wavelengths to plural wavelength filters 400 in order to filter preferred wavelengths in a wavelength division multiplexer/demultiplexer setting.

Abushagur 018' does not teach or suggest a core frame structure for holding the fibers/reflectors in a protective housing.

Lemoff et al. 864' teaches (Figs. 1-3) an optical multiplexer/demultiplexer and method of making same comprising: an optical fiber input 42, a unitary core housing/frame 14,76 that holds plural wavelength dependent filters 20,22,24,26 and sends a multiplexed output to outputs 60,62,64,66.

Since both Abushagur 018' and Lemoff et al. 864' are both from the same field of endeavor, i.e., optical WDM device and method of making same, the purpose using a unitary core frame to hold/protect

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optical components in a unitary setting, as is taught by Lemoff et al. 864' would have been recognized in the pertinent art of Abushagur 018'.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the optical WDM device of Abushagur 018', form [sic] the purpose of having a unitary housing for protection of optical WDM components.

The applicants respectfully disagree and address the issues raised by the Examiner with respect to rejected independent claims 1, 17 and 26.

Independent claim 1 calls for "a plurality of wavelength-dependent filters, each wavelength-dependent filter associated and in fixed relationship with an end section of first and second set optical fibers so that light transmitted through said wavelength-dependent filter passes into said associated end section...." In contrast to this language, Fig. 4 of the cited Abushagur patent does not show such a relationship between each of the wavelength-dependent filters 400 and the optical fibers 411, 412 and 413 such that "light transmitted through said wavelength-dependent filter passes into said associated end section." For example, for the topmost filter 400 of Fig. 4, light from the fiber 410 transmitted through that filter enters the rightmost fiber 413 or the light from the leftmost fiber 411 can enter any one of the remaining fibers 413.

Secondly, the applicants' core frame holds "said end sections of said input/output optical fiber, said end sections of said first and second set optical fibers, and said plurality of wavelength-dependent filters so that light from said input/output optical fiber and reflected by said plurality of wavelength-dependent filters travels in a light path from said input/output optical fiber to each wavelength-dependent filter of each end section of said first and second set optical fibers alternately." Even if the device of Fig. 4 of the cited Abushagur patent could be mounted into a core assembly as claimed, the path of light reflected by the plurality of filters 400 is not as the applicants claim. Furthermore, the lack of a relationship between each of the filters 400 to one of the optical fibers 411, 412 and 413 is once again clear.

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Finally, the Examiner cites the Lemoff patent for the teaching of the applicant's core assembly and combines the Lemoff main optical block 14 (MOB) and lens block array 76 with the multiplexer arrangement of the Abushagur patent. However, where the applicants call out for a single element, i.e., a core frame, the Examiner requires two elements, "a unitary core housing/frame 14,76." An even more serious defect in this combination is that it simply cannot be made. Both the MOB 14 and the lens block array 76 are made of "a monolithic, homogenous, and optically transparent material such as plastic or glass." See col. 5, lines 32-34 and col. 7, lines 31-33. On the other hand, the optical add/drop multiplexers of the Abushagur patent are dynamically reconfigurable, (see the title of the patent) with moveable elements. In the Fig. 4 arrangement, mirrors 420 are actuated. See col. 3, lines 16-20. How such moveable elements are placed in monolithic blocks of plastic or glass is not understood.

Therefore independent claim 1 is not obvious by the combination of the cited Abushagur and Lemoff patents and should be allowed. Claims 2-8 should also be allowable for at least being dependent upon an allowable base claim.

Independent claim 17 likewise has language similar to claim 1. I.e., claim 17 calls for:

...a plurality of wavelength-dependent filters, each wavelength-dependent filter associated and in fixed relationship with an end section of said optical fibers so that light transmitted through said wavelength-dependent filter passes into said associated end section and said optical fiber; and

a core frame holding said end sections of said input/output optical fiber and said optical fibers, and said plurality of wavelength-dependent filters so that light from said input/output optical fiber reflected by said plurality of wavelength-dependent filters travels in a light path from said input/output optical fiber to each wavelength-dependent filter of each end section of each optical fiber.

By the same arguments above made with respect to claim 1, claim 17 should also be allowable. Claim 18 should also be allowable for at least being dependent upon an allowable base claim.

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Independent method claim 26 calls for "mounting end sections of said input/output optical fiber and said optical fibers to said core frame, each end section of said optical fibers in fixed relationship with one of said wavelength-dependent filters so that light transmitted through said wavelength-dependent filter passes into said associated end section and said optical fiber and light from said input/output optical fiber reflected by said plurality of wavelength-dependent filters travels in a light path from said input/output optical fiber to each wavelength-dependent filter of each end section of each optical fiber." As pointed out above, the applicants do not find a relationship between the filters 400 and optical fibers 411, 412 and 413 in the Abushagur patent, as called for in the language above.

Furthermore, claims 26 also recites, "mounting a plurality of wavelength-dependent filters to a core frame, each of said wavelength-dependent filters having a first side and a second side, said wavelength-dependent filters mounted to said core frame by said first side and said second side alternately in said light path to minimize divergence degradation." The applicants do not find any description in the cited Abushagur patent that the filters 400 are mounted "by said first side and said second side alternately in said light path to minimize divergence degradation."

Finally, as argued previously, the applicants do not see how the cited Abushagur and Lemoff patents can be combined, given the monolithic nature of two Lemoff elements, the MOP 14 and lens block array 76, with the moveable mirrors in the Abushagur dynamically reconfigurable multiplexers.

Hence independent claim 26 is also not obvious by the combination of the cited Abushagur and Lemoff patents and should be allowable. Claim 32 should be allowable for at least being dependent upon an allowable base claim.

Therefore, in view of the remarks above, the applicants respectfully request all rejections be withdrawn, that claims 1-32 be allowed and the case be passed to issue. If a telephone conference would in any way expedite the prosecution of the application, the Examiner is asked to call the undersigned at (408) 868-4088.

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